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DECLARATION

THE UNDERSIGNED, Authorized Translator duly examined and by the Finnish Ministry of Justice admitted to certify translations made from the Finnish into the English language,

HEREBY solemnly declares that the attached document reading in English is a true and faithful translation of a Priority Document concerning utility design application no. U980432 (Utility Design no. 3979), entitled "Laitteisto ruoka-annosten käsittelemiseksi", filed with the Finnish National Board of Patents and Registration of Trademarks in the name of Penttinen, Jukka.

AND I MAKE this solemn declaration sincerely believing it to be true.

ON this 2nd day of June, 2004.


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APPARATUS FOR THE PROCESSING OF FOOD PORTIONS

The present invention relates to a method for the processing
5 of food portions as defined in the preamble of claim 1.

Traditionally, the processing of foodstuffs, especially domestic foodstuffs, consists of a shopping trip to a grocer's, storage of the foodstuffs in a refrigerator or deep freeze,
10 and preparation of food e.g. in an oven or microwave oven. In practice, plenty of time is spent on collecting foodstuffs and likewise a large number of different devices and utensils are needed for the processing of foodstuffs to prepare food, which devices and utensils take up plenty of space and, due
15 to their diversity, constitute complicated complexes that are difficult to maintain, among other things. Moreover, there are many categories of people, such as the aged, handicapped and children, who can not or are unable to prepare their meal themselves using the methods and devices currently in use.

20 The object of the present invention is to change this traditional manner of action by automating the foodstuff processing chain in a previously unknown way for the preparation of daily meals. The amount of work needed for the preparation and serving of food in homes, institutions, such as old-age
25 homes as well as small offices, is thus considerably reduced. Likewise, preparation of food becomes easier and will be possible even for persons who do not know how to or are unwilling or unable to prepare their food themselves. To
30 achieve this aim, the apparatus of the invention is characterized as defined in the characterisation part of claim 1. Other preferred embodiments of the invention are characterized by what is defined in the other claims.

35 The solution of the invention has the advantage of achieving a work- and space-saving and economical method in food supply

in homes, institutions as well as small offices that is easy and convenient for all categories of people. Consequently, the aged, handicapped as well as children can easily prepare their food themselves. According to the invention, the preparation of food portions for eating is accomplished using a single apparatus, which includes storage and cooking of food portions and a serving space. The integrated apparatus allows easy preparation of food and substantially reduces the amount of work and effort needed for the acquisition and preparation of food. The disclosed invention consists of a method and an apparatus which, depending on the embodiment, has a possibility to maintain a connection with a foodstuff supplier or other organisation over a telecommunication network. The apparatus comprises spaces for cold storage and heating of food portions. The foodstuffs are delivered to the apparatus in suitable quantities, e.g. once a week. The foodstuffs are delivered as ready-made deep-frozen meals, which are stored in the cold spaces of the apparatus. When the user of the apparatus wants a meal, he/she starts the apparatus, whereupon the apparatus selects the chosen meal according to a command given by the user, heats it to a suitable temperature and brings the heated meal out onto the delivery table of the apparatus. The solution of the invention has the additional advantage of making it easy to control the nutrition level, allowing the users themselves to choose for themselves a healthy diet to their liking. A further advantage is easy identification of products e.g. by means of a bar code system.

In the following, the invention will be described in detail with reference to an embodiment and the Fig. 1, which presents a block diagram of the apparatus.

According to Fig. 1, the deep-frozen food portions are placed for storage into a cold storage space represented by block 1 and serving as a storage space, which has a low temperature

suited for the storage of deep-frozen products. The control of the temperatures is implemented using a refrigerating technique known in itself, e.g. by a compressor or evaporation method. The humidity in the storage space can also be regulated if necessary. The foodstuffs are packaged as complete meals and deep-frozen. In a preferred embodiment of the invention, all the food portions in the apparatus are stored at the same temperature. Block 2 represents a transfer mechanism, which is used to transfer the food portion into a heating apparatus 3 serving as a food preparation section. The transfer mechanism can be implemented using known technology. The heating apparatus represented by block 3 heats the food portion to an even temperature suitable for the user by a resistor heating technique or microwave heating technique or by a combination of these. The heating apparatus may comprise temperature control or control of output power and heat energy to allow the desired temperatures to be reached. A serving device represented by block 4 enables the heated meal to be brought within reach of the user so as to make it as easy as possible for the user to take the food portion from the machine. If necessary, the transfer mechanism also works between the heating apparatus and the serving device.

A block 9 functioning as a data processing part contains a telecommunication section 5 with the required telecommunication functions, a control centre 6 and a user interface 7. Present-day technology makes it possible to implement the data processing part 9 using a microcomputer. The microcomputer may be a separate microcomputer installed in the house, or it may be a computer integrated with the apparatus of the invention. In the case of a separate computer, the apparatus comprises means for connecting the computer to the apparatus.

The telecommunication part is implemented using e.g. an Internet connection over a telephone network 8. Telecommunication can be used for ordering new foodstuffs from a food-

stuff supplier. This action may be automated so that a new order is issued when the amount of foodstuffs falls below a set minimum level. The ordering may also be done manually, in which case the user defines via the user interface of the microcomputer the amount and sort of foodstuffs ordered. Via the network connection, it is also possible to transmit failure information about eventual faults in the apparatus and alerts about the machine running out of food, and also to start the apparatus by remote control to prepare food. Remote starting can be implemented using another microcomputer, from which it is additionally possible to see the content and number of food portions in an apparatus in a home or the like.

The microcomputer further makes it possible to control the amounts and quality of nutrients contained in the foodstuffs, either automatically or by giving instructions to the user. Control of nutrition level can be easily implemented, so that when the user needs a diet, the microcomputer will see to it that the diet is observed.

Block 6 is a control centre and it functions as a controller of the automatics of the apparatus. Modern microcomputers can be provided with additional electronic circuit boards provide input and output connections for controlling other devices. Connections are provided from the control centre 6 to the foodstuff storage section 1, the transfer mechanism 2, the food preparation section 3 and to the serving device 4. In addition, the control centre 6 is connected to the telecommunication section 5 and to the user interface 7. The user interface represented by block 7 can be implemented with the possibilities allowed by the microcomputer. These include e.g. a keyboard, a mouse and a touch-sensitive display screen, as well as communication by speech.

A user interface very easy to use is also an interface based

on pictorial cards or on token discs. In this case, for example, the card bears on one side of it the picture and/or name of a food portion and on the same side or on the other side an identifying marking based on a bar code, magnetic stripe
5 or equivalent, describing the same food portion. When the user feeds a card representing a desired food portion into the user interface of the apparatus, the apparatus will read the identifying marking, prepare the requested meal and make a marking indicating that the food portion in question has
10 been used.

The identification of products is based on a bar code system, a magnetic stripe or equivalent, which provides the advantage that the markings are clear enough for the system of the
15 invention to reliably identify the foodstuffs supplied into the apparatus, which, based on an order, are transported on a delivery van of a grocery shop or other service organisation directly to the apparatus. The apparatus is installed in the home in a suitable place, e.g. in the kitchen, as a stand-
20 alone piece of equipment, or it is mounted in the kitchen fittings, e.g. flush-mounted with the working table top. Being of a compact size, the apparatus can also be placed in the vestibule or living room.

25 Nutrient supply, consumption habits, expenses and other associated matters can be monitored regularly on the basis of information gathered in the database of the apparatus and, if desirable, reports can be printed out on a printer connected to the apparatus.

30

It is obvious to the person skilled in the art that the invention is not exclusively limited to the example described above, but that it may be varied within the scope of the claims presented below. Thus, an advantageous embodiment of
35 the invention may be so implemented that, instead of moving the food portion, the temperature of its storage box is

changed during the heating operation. This embodiment comprises no transfer mechanism. The storage space may also be divided into separate boxes. After the storage space has been divided into boxes, it will be possible to store different food portions under different temperature and humidity conditions. In this case, each box is adjusted separately if necessary. The operation may also be so implemented that the final portion consists of several sub-portions, which are processed by the apparatus by turns. In this case, the food portions need not consist of ready-made dishes; instead, the various constituents are stored in their separate storage spaces and it is only at preparation time that the apparatus composes and prepares the food portion. The apparatus may also be so installed that the person bringing supplements can introduce the foodstuffs into the apparatus using his/her own key, yet without having to enter into the building. In this case, the apparatus is provided with a back door which can be opened directly from outside the building.

CLAIMS

1. An apparatus for the processing of food portions, said apparatus comprising at least a cold storage space (1) for storage of food portions and a food preparation section (3), **characterized** in that the cold storage space (1) and the food preparation section (3) are integrated into a single assembly, which has been arranged to be controlled by means of a control centre (6) and a user interface (7).
2. An apparatus according to claim 1, **characterized** in that, in addition to the cold storage space (1), food preparation section (3), control centre (6) and user interface (7), the apparatus comprises a telecommunication section (5) used to implement communication connections to the supplier of food portions and to a controller of fault data or to a corresponding party.
3. An apparatus according to claim 1 or 2, **characterized** in that the apparatus comprises a transfer mechanism (2), which has been arranged to transfer food portions from the cold storage space to the food preparation section and, if necessary, further to a serving device (4).
4. An apparatus according to claim 1, 2 or 3, **characterized** in that the apparatus comprises a data processing section (9), which has been arranged to act as a supervising element storing and delivering information and activating the functions of the apparatus.
5. An apparatus according to any one of the preceding claims, **characterized** in that the apparatus is connected to a telecommunication network, such as a telephone network (8), over which the orders for food portions, remote operation of the apparatus, notices of fault data etc. have been arranged to be implemented.

6. An apparatus according to any one of the preceding claims,
characterized in that the apparatus is provided with func-
tions for controlling the nutrition level and the user's
5 diet.

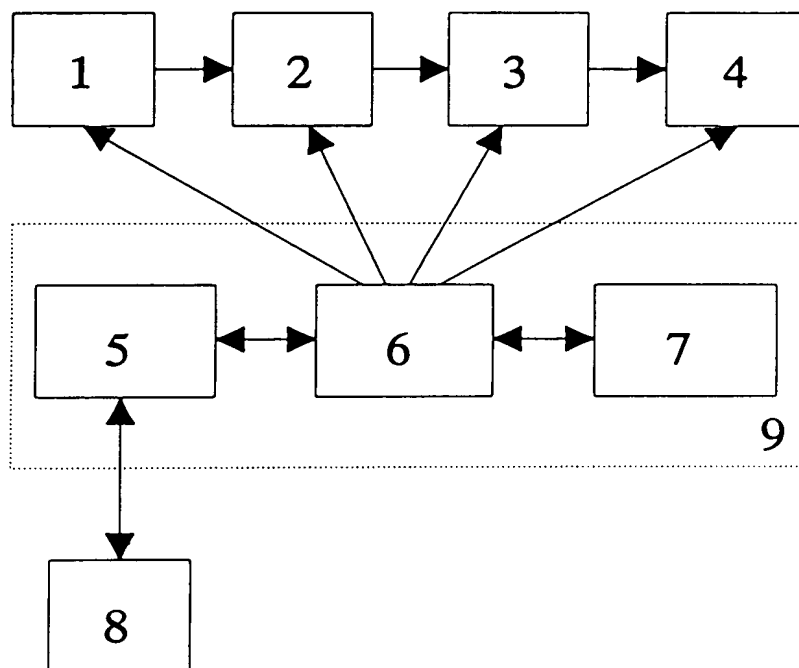


Fig. 1